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Difference in the Physical Properties of White-Core and Non-White-Core Kernels of the Rice Varieties for Sake Brewing is Unrelated to Starch Properties

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Abstract: This study was designed to determine whether or not the difference in the physical properties between white-core and non-white-core kernels of the rice varieties for sake brewing is associated with their starch properties. We used two rice cultivars for sake brewing, Senbon-nishiki and Yamada-nishiki, from three different plots in Hiroshima prefecture. Hardness values of kernels were significantly higher in non-white-core than in white-core kernels in both varieties. Vickers hardness (VH) values were lowest at the center of the kernel in both types of kernels. VH values of white-core tissues of white-core kernels were significantly lower than those of corresponding tissues of non-white-core kernels. No significant differences were observed between the two types of kernels in VH values of the surrounding translucent tissues and in the starch properties (amylose content, pasting properties analyzed using a rapid viscoanalyzer and gelatinization properties analyzed using a differential scanning calorimetry). These results suggest that the difference in physical properties between the two types of kernels of the rice varieties for sake brewing are associated with the difference in structure of endosperm cells and not in starch properties.

Keywords: [Brewer's rice](#), [Hardness](#), [Non-white-core kernel](#), [Starch](#), [White-core kernel](#)

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